



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,012	12/05/2001	Hiroshi Sekine	XA-9591	3034

181 7590 11/15/2004
MILES & STOCKBRIDGE PC
1751 PINNACLE DRIVE
SUITE 500
MCLEAN, VA 22102-3833

EXAMINER

BINDA, GREGORY JOHN

ART UNIT PAPER NUMBER

3679

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,012

Applicant(s)

SEKINE, HIROSHI

Examiner

Greg Binda

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on September 13 & 24, 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6 and 8-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040924
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 3679

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

2. Claims 1-3 & 6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election of Species IX (shown in Fig. 10) was made **without** traverse in Paper No. 8.

Drawings

3. The drawings are objected to because the drawings of the elected species fail to show the “interference” recited in claims 11, 12, 16 & 17. At best, Fig. 10B shows an “interference set to 0” (see page 20, line 10), but does not show an interference greater than zero.

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement

Art Unit: 3679

Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. Claims 8, 11, 12, 13, 16 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kayser, US 3,138,942. Figs. 1 & 2 show a cross joint 10 adapted to be used in a steering apparatus, the joint comprising: a yoke (see "furcation of a universal joint" in col. 2, lines 67 & 68) formed with a bearing hole (see "openings" in col. 1, line 13); a needle bearing 16, 24 positioned in the bearing hole, the needle bearing including a bearing cup 16 and rollers 24 provided therein; and a spider shaft 14, an end portion of which is fitted into the bearing hole through the needle bearing 16, 24. Figs. 1 & 2 show the rollers 24 are interference-fitted on an end periphery 27 of the end portion of the spider shaft 14, but Kayser does not expressly disclose an interference in a range from 0.0002 mm to 0.025 mm. In col. 3, lines 62-65, the rollers 24 are disclosed as axially movable, but Kayser does not expressly disclose that the amount of movement be equal to 0.6 mm or larger. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the amount interference in a range from 0.0002 mm to 0.025 mm and the amount of movement be equal to 0.6 mm or larger, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056.

Art Unit: 3679

6. Claims 9 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kayser as applied to claim 8 above, and further in view of Takabe, US 2001/0007832. In col. 2, lines 3-7, Kayser discloses that a lubricating agent fills the interior of the needle bearing 22, 24, but Kayser does not expressly disclose that an extreme-pressure additive is added to the lubricating agent. In paragraphs 0011-0013, Takabe discloses adding an extreme-pressure additive to a lubricating agent in order to provide a lubricating agent that will exhibit durability under severe conditions, will keep suitable hardness with little change in consistency at high temperature, and exhibit better water resistance compared with other lubricants. It would have been obvious to one of ordinary skill in the art to modify the cross joint of Kayser by adding an extreme-pressure additive to the lubricant in order to provide a lubricating agent that will exhibit durability under severe conditions, will keep suitable hardness with little change in consistency at high temperature, and exhibit better water resistance compared with other lubricants.

7. Claims 8, 10-13 & 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangiavacchi, US 4,710,150. Mangiavacchi discloses a cross joint adapted to be used in a steering apparatus, the joint comprising a yoke (see "a universal joint" in col. 2, lines 17) formed with a bearing hole. The figure shows the joint comprises: a needle bearing 3, 4 to be positioned in the bearing hole, the needle bearing including a bearing cup 3 and rollers 4 provided therein; and a spider shaft 1, an end portion of which is fitted into the bearing hole through the needle bearing 3, 4. The figure shows the end portion of the spider shaft is formed with a hole (see also "cavity" in col. 2, line 29) that is "bottomed" by element 5. The figure shows the rollers 4 are

Art Unit: 3679

interference-fitted on an end periphery of the end portion of the spider shaft 1 but Mangiavacchi does not expressly disclose an interference in a range from 0.0002 mm to 0.025 mm. The figure shows a gap or space below the rollers 4, which indicates the rollers 4 are arranged to be movable in an axial direction, but Mangiavacchi does not expressly disclose that the amount of movement be equal to 0.6 mm or larger. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the amount interference in a range from 0.0002 mm to 0.025 mm and the amount of movement be equal to 0.6 mm or larger, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056.

8. Claims 9 & 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangiavacchi as applied to claim 8 above, and further in view of Takabe. In col. 2, lines 27 & 28, Mangiavacchi discloses that a lubricating agent fills the interior of the needle bearing 3, 4, but Mangiavacchi does not expressly disclose that an extreme-pressure additive is added to the lubricating agent. However, it would have been obvious to one of ordinary skill in the art to modify the cross joint of Mangiavacchi in view of Takabe by adding an extreme-pressure additive to the lubricant for the same reason noted in item 8 above.

Response to Arguments

9. Applicant's arguments filed September 13 and 24, 2004 have been fully considered but they are not persuasive.

Art Unit: 3679

- a. Applicant argues that the limitations of claims 11, 12, 16 & 17 cannot be shown in the drawings because an interference fit results from pressure that cannot be seen. However, in the claims, interference is quantified by length (e.g. 0.035 mm) not by pressure. Length can be seen and since it is a claim limitation, it should be shown in the drawings or be stricken from the claims.
- b. Applicant argues that Kayser and Mangiavacchi each fail to show an interference fit between the rollers and spider shaft because neither reference expressly discloses an interference fit. However, Kayser's Fig. 1 shows the roller 24 is held against gravity between the spider shaft 14 and the bearing cup 16. The only way the roller could be held in that manner is if the roller is interference fitted between the bearing cup and spider shaft. Likewise, Mangiavacchi shows the roller 4 held in the same way.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 3679

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Binda whose telephone number is (703) 305-2869. The examiner can normally be reached on M-F 9:30 am to 7:00 pm with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (703) 308-2686. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Greg Binda
Primary Examiner
Art Unit 3679